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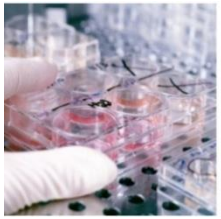
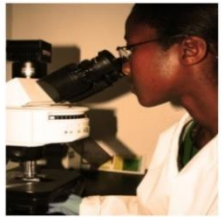


Coverage of HIV testing and ART use among men attending STI services

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Senior Epidemiologist
Centre for HIV and STIs , NICD

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Background

- STI clinic attendees maybe a subgroup at high risk of HIV infection
- Both STIs and HIV are largely sexually transmitted.
- Acute HIV infection can present with genital symptoms and genital inflammation facilitates HIV transmission
  - AHI ~5% in STI services in Malawi (in 2011 prior to test and treat) and most HIV positives in Western Europe diagnosed through SHC (69%)
- Both conditions stigmatised and attendees at risk of going undiagnosed or untreated
- STI services a good platform to identify acute HIV infection, undiagnosed HIV, untreated HIV and high risk men for prevention as observed in some European studies
- Limited local data - ↓ testing among STI service attendees in facility based survey

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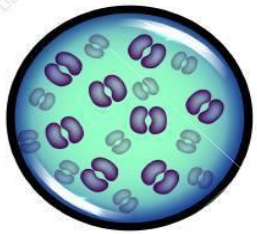
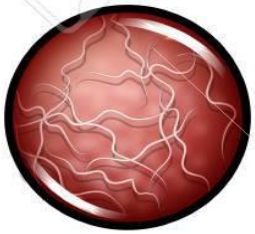
Background

- Management of STIs in South Africa is syndromic- treat for all organisms associated with common symptoms – GUS, MUS and VDS

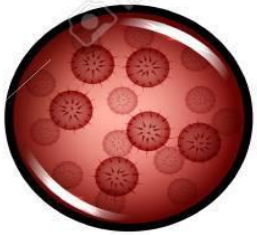
Main organisms included in NICD microbiological surveillance



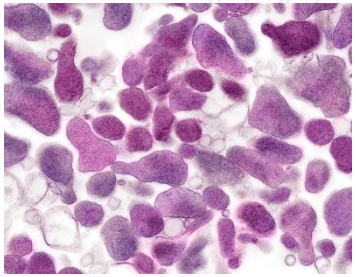
gonococcus



Treponema pallidum

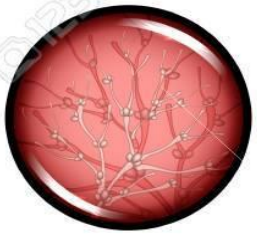


genital herpes

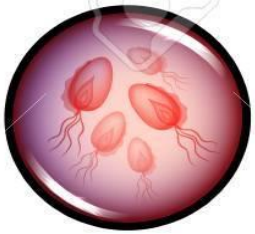


Mycoplasma genitalium

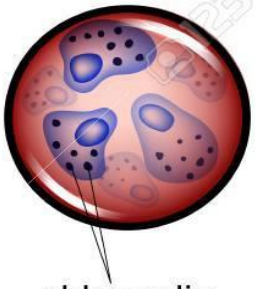
Gardnerella vaginalis commonly implicated in BV



candida



Trichomonas



chlamydia

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Background

- The Centre for HIV and STIs conducts microbiological sentinel surveillance for STI syndromes in the country.
- STI clinic attendees are enrolled and genital specimens collected to determine aetiological pathogens for the different syndromes and gonococcal AMR among males.
- In 2017, STI services at 4 primary care clinics took part in the surveillance
- Clinics located in Eastern Cape, Free State, Gauteng and Western Cape provinces

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Objectives

- Describe HIV positivity, knowledge of HIV status and coverage of ART use among males attending STI treatment services
- Determine factors associated with knowledge of HIV status and correct reporting of HIV status
- Discuss implications for HIV prevention, care and treatment programmes

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Methods – Data collection

- Enrolment from January 2017- March 2018, during regular clinic hours. Expected sample sizes 150 for MUS, 100 for GUS per site
- Surveillance officer (nurse) enrols attendees ≥18 years with symptomatic genital discharge or ulcer disease
- Following informed consent; anonymous (unlinked) questionnaire on demographic, clinical and behavioural characteristics completed for each attendee
- Relevant genital and blood specimens also collected and rapid HIV testing (3rd gen) in the laboratory used to establish true HIV status.
- Treatment provided according to standard treatment guidelines

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Methods- Data analysis

- Data entered into study specific Access database at CHIVSTI data centre and exported into Stata 14.2 for analysis

Outcomes	Analysis method
Description of enrolled attendees	Descriptive statistics
% male STI service attendees who knew their HIV status % male STI service attendees tested for HIV in the past 6m % HIV positive attendees self reporting ART use	Descriptive statistics
aOR for factors associated with knowledge of HIV status aOR for factors associated with correct report of HIV status	Logistic regression

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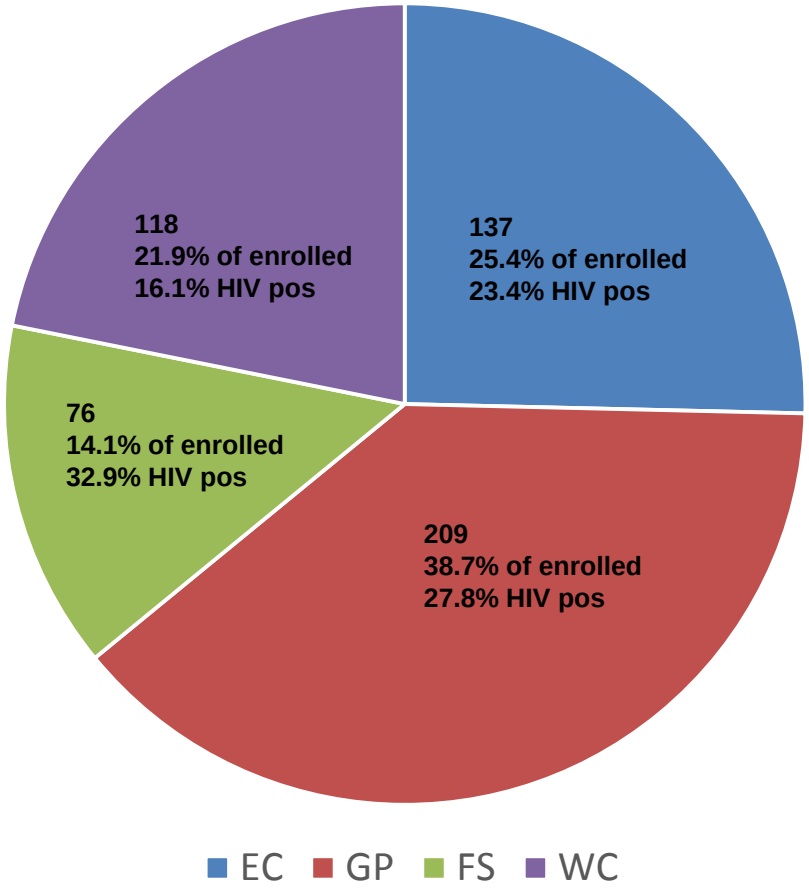
Results

- 540 males were enrolled at the 4 sites,134 (24.8%) HIV positive



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Results

Demographic, clinical and behavioural characteristics (*statistically significant)

Characteristic	HIV positive (N=134)	HIV negative (N=406)	All (N=540)
Age (median, IQR)	31(26- 36)	26 (23- 31)	27 (24- 32)*
Genital ulcer at presentation	32 (23.9)	46 (11.3)	78 (14.4)*
Non-regular sexual partner	72 (53.7)	238 (58.6)	310 (57.4)
Circumcised	78 (58.2)	299 (73.3)	377 (69.8)*
Medically circumcised	64 (15.8)	14 (10.5)	78 (14.4)
Condom use at last sex	24 (17.9)	43 (10.6)	67 (12.4)*
STI syndrome in past 12m	41 (30.6)	108 (26.6)	149 (27.6)
Partner in different province (3m)	27 (20.2)	81 (20)	108 (20)
Know HIV status	88 (65.7)	308 (75.9)	396 (73.3)*
Most recent HIV test in past 6m	39/82 (47.6)	196/ 300 (65.3)	235/ 382 (61.5)*
Time since HIV test (median, IQR)	8.2 (1.8- 27.3)	4.1 (1.1- 8.9)	4.4 (1.3- 10.8)*

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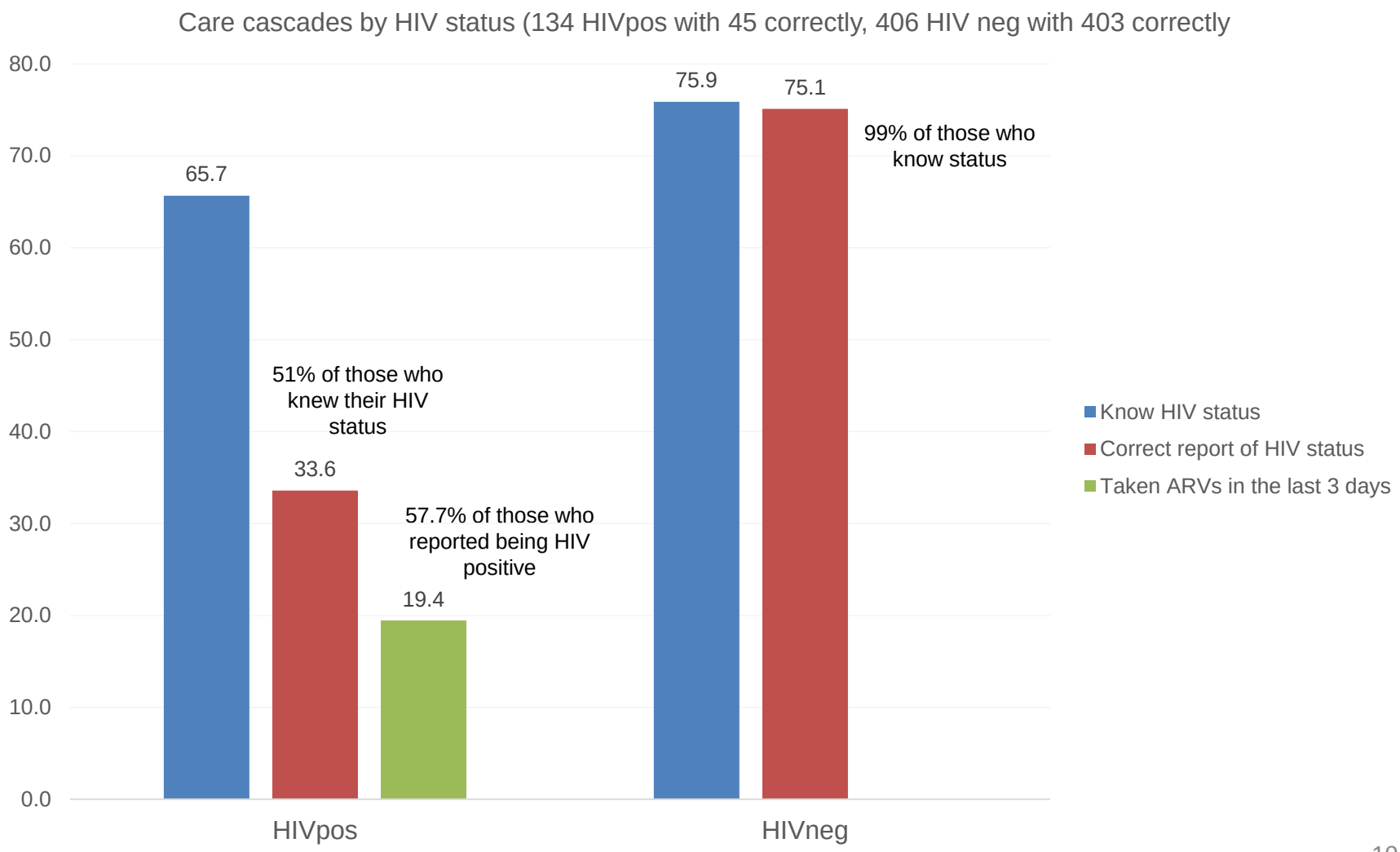
Results



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Results

Factors associated with not knowing HIV status (N=540)

- HIV status (vs HIV-)
  - HIV+ aOR 1.69(95% CI 1.04- 2.76)
- Facility of enrolment (vs EC site)
  - GP site aOR 0.41(95%CI 0.24-0.68)
  - FS/WC site aOR 0.05(95%CI 0.03-0.11)
- Medical circumcision (vs none/trad)
  - aOR 0.42(0.24- 0.88)

**Adjusting for HIV status, age, syndrome at enrolment, presence of STI, facility, method of circumcision, non-regular partner in last 3m

Factors associated with correct report of HIV status (N=134)

- Facility of enrolment (vs EC site)
  - GP site aOR 0.61(95%CI 0.14- 2.62)
  - FS/WC site aOR 10.68(95%CI 2.94-38.73)
- GUS (vs MUS)
  - GUS aOR 4.98 (95%CI 1.57- 15.77)
- Non-regular partner (vs regular)
  - aOR 0.35 (95% CI 0.14- 0.90)

** Adjusting for non-regular partner in last 3m, facility of enrolment, age and syndrome at enrolment

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Discussion

- In summary
  - 540 males enrolled from 4 sites in 4 provinces
  - High HIV prevalence, lower than targeted knowledge of HIV status, low correct reporting of HIV status, lower than targeted ART coverage/ use
  - Not knowing HIV status associated with being HIV positive, with facility of enrolment and not being medically circumcised
  - Correct reporting of HIV positive status independently associated with reporting a non-regular sexual partner, facility of enrolment, having GUS at enrolment
  - High incorrect report might be due to incident HIV or deliberate misreporting

- Limitations
  - Self reported data. Social desirability bias and incorrect recall could be at play
    - Proposal to validate these data with ARV testing, viral load testing on all HIV positives, pooled NAATs for HIV negatives developed but not funded
  - Cross sectional data
  - Limited number of facilities so may not be generalizable to all facilities in a dis/prov/country. Challenge is finding the high STI burden clinics in the absence of good national STI reporting system. 260 000 cases of MUS reported nationally in 2016-2017 (DHIS)

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Implications for programming

- HIV prevention
  - Able to enrol males with no major problems – especially at GP site
  - Possibly more males in with after hours visits, offering STI screening services not just treatment for symptomatics
  - Majority are HIV negative (75%) so great opportunity for risk reduction counselling, condom distribution, referral for MMC and ? PreP

- HIV testing
  - Significant proportion untested (almost a 1/3) but also recent testers (65% among HIV negatives).?Ongoing risk following HIV testing.
  - Contact tracing and testing of partners
  - May miss acute infections – great place to validate 4th generation assays

- Linkage to and retention in care
  - About 50% of those who self- reported being HIV positive were not taking ARVs
  - Linkage to HIV care actively needs to be promoted- case management, same day initiation etc.
  - Ongoing support among positives in order to reduce risky behaviour (prevention for positives)

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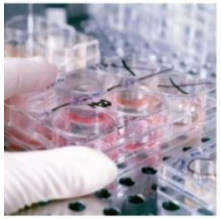
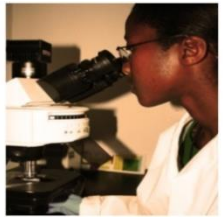


Proposed implementation of an early warning system for unsuppressed HIV viral loads and loss to follow up for high risk males: the role of centralized laboratory data

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Background

- SA has the largest HIV treatment program in the world accounting for 20% of all people on treatment
- UTT implemented in September 2016
- Need to put more people on treatment while maintaining quality and meeting the 90-90-90 targets
- NDOH introduced strategies for long term ART care
  - Community based - Adherence clubs, CCMDD
  - Facility based – fast-track appointments, spaced out clinic visits
- Concerns over long term retention
  - loss to follow up , disengagements from care, silent transfers
  - Also timely response to loss of viral suppression while in care

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Objectives

Overall objective: To track and monitor viral suppression rates among individuals receiving long term ART maintenance care using centralized laboratory data and implement an early warning laboratory alert system for missed viral load measurement and actionable viral load results.

Specific objectives

- Estimate long term viral load completion and suppression rates among individuals eligible for community based HIV care by age, gender and location (province, district and sub-district)
- Prospectively identify individuals eligible for long term community based HIV care who become virally unsuppressed or miss viral load measurement and issue reports and alerts to associated facilities
- Determine community and individual level factors associated with loss of viral suppression among individuals in long term community based HIV care.

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Setting

- NHLS is sole provider of VL and other HIV related lab testing in the country
- All lab test data archived in the CDW
- Absence of unique identifier limited utility of the data in the past
- Use of probabilistic linking algorithm has allowed the linking of multiple tests to unique individuals and analysis of longitudinal data
- Current algorithm uses name surname, DOB, gender, facility and province to assign a score based on probability that tests belong to a unique individual
- Algorithm has under and over matching rates of 9% and 9.5% respectively (Carmona S et al 2018)

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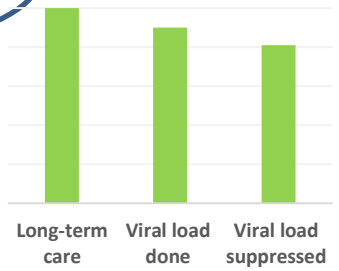
Technical approach

CDW

Test data

Lab



Eligibility for long term care
CD4 count + ≥2 suppressed viral loads 3-15 months apart

Online portal
Lab interface

Report (national→facility)
eligible for long term care
individuals with CD4 count but no VL in > 15m
individuals with VL> 1000

Associated factor analysis

Online portal
User interface

Report (national→facility)
eligible for long term care
individuals with no VL in >15m
individuals with VL>1000

Data entry interface
Data entry for tracing outcomes

Facility

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Technical approach- outputs

RfA report

Province	District	Sub District	Facility	Ward	Patient DOB DESC	Sex	Patient Age	Taken Date	Reviewed Date	Episode No	CDW Patient Identifier	HIV VL Result (Detected VL)	Total No. of Previous Consecutive VL >1000
Gauteng	Sedibeng	Emfuleni	Sebokeng Hospital	Ward 18		M	Unknown	02-FEB-2018	05-FEB-2018	IJ01539386	141540637	8,420,000	
Gauteng	City of Johannesburg Metro	Johannesburg A	Mpumelelo Clinic	Arv Clinic	03-MAY-1968	M	49 years 8 months 29 days	01-FEB-2018	05-FEB-2018	ILM0058403	141471464	7,860,000	
Gauteng	Ekurhuleni Metro	Ekurhuleni North 1	Esangweni Clinic	Arv Clinic	01-JAN-1973	M	45 years 1 month 1 day	02-FEB-2018	06-FEB-2018	ILM0058441	102899177	6,940,000	1
Gauteng	City of Johannesburg Metro	Johannesburg D	Chris Hani Baragwanath Hosp	Ward 20	28-JUL-1984	F	33 years 6 months 9 days	06-FEB-2018	08-FEB-2018	HG05313663	122917576	6,750,000	1
Gauteng	City of Johannesburg Metro	Johannesburg D	Chris Hani Baragwanath Hosp	Ward 20	11-DEC-1985	M	32 years 1 month 26 days	06-FEB-2018	08-FEB-2018	HG05313835	141274944	6,740,000	
Gauteng	City of Johannesburg Metro	Johannesburg D	Chris Hani Baragwanath Hosp	Ward 20	29-SEP-1988	F	29 years 4 months 5 days	04-FEB-2018	06-FEB-2018	HG05302945	141275056	6,330,000	
Gauteng	City of Johannesburg Metro	Johannesburg D	Bheki Mlangeni Hospital	Accident And Emergency	03-MAY-1985	F	32 years 8 months 30 days	02-FEB-2018	05-FEB-2018	HG05300539	141394058	6,140,000	
Gauteng	Ekurhuleni Metro	Ekurhuleni North 1	Birchleigh North Clinic	Arv Clinic	22-OCT-1986	F	31 years 3 months 14 days	05-FEB-2018	10-FEB-2018	ILM0049069	125973495	5,750,000	2
Gauteng	City of Johannesburg Metro	Johannesburg F	Yeoville Clinic	Arv Clinic	19-JUN-1994	F	23 years 7 months 18 days	07-FEB-2018	09-FEB-2018	HN01996524	141296953	5,340,000	
Gauteng	City of Johannesburg Metro	Johannesburg B	Helen Joseph Hospital	Eye Clinic	11-JUN-1982	M	35 years 7 months 24 days	05-FEB-2018	06-FEB-2018	LD02353571	102211790	5,230,000	
Gauteng	City of Johannesburg Metro	Johannesburg B	Rahima Moosa Mother And Child Hospital	Empilweni Clinic	23-APR-2017	M	9 months 8 days	01-FEB-2018	07-FEB-2018	LD02347815	134669126	5,145,190	1
Gauteng	City of Johannesburg Metro	Johannesburg B	Helen Joseph Hospital	Ward 10	17-JUL-1958	F	59 years 6 months 21 days	07-FEB-2018	09-FEB-2018	LD02350463	141254844	5,000,000	
Gauteng	City of Johannesburg Metro	Johannesburg D	Bheki Mlangeni Hospital	Accident And Emergency	01-FEB-1967	M	51 years 7 days	08-FEB-2018	10-FEB-2018	LH00430328	141392460	4,810,000	
Gauteng	Ekurhuleni Metro	Ekurhuleni South 1	Bertha Gxowa Hospital	Stepdown Ward B	24-DEC-1989	M	28 years 1 month 12 days	05-FEB-2018	06-FEB-2018	ID00418280	140877774	4,780,000	
Gauteng	City of Johannesburg Metro	Johannesburg F	Charlotte Maxeke Hospital	Infectious Diseases 497	29-OCT-1967	M	50 years 3 months 7 days	05-FEB-2018	06-FEB-2018	HN01985076	6053527	4,510,000	
Gauteng	City of Johannesburg Metro	Johannesburg G	Orange Ext 7 Clinic	Arv Clinic	13-FEB-1964	M	53 years 11 months 17 days	01-FEB-2018	06-FEB-2018	HG05303750	124729695	4,280,000	
Gauteng	City of Johannesburg Metro	Johannesburg F	Charlotte Maxeke Hospital	Area 556 Arv Adult Prvd	31-AUG-1985	F	32 years 5 months 6 days	06-FEB-2018	08-FEB-2018	HN01987542	2212740	4,160,000	

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Technical approach - Outputs

- Link with other databases
  - Tier.net
  - CCMDD
  - DHA

- Reports to include
  - Factors associated with uncompleted/ unsuppressed viral loads
  - Geospatial locations where there are high rates of unsuppressed viral loads

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Technical approach- Resources

Component	Resources
CDW	Data analysts Epidemiologist (data analysis)
Online portal (lab)	Software developers Connectivity User registration/ maintenance capacity
Online portal (user)	Software developers Connectivity Data entry capacity
District/Facility	Connectivity Tracing teams Data entry capacity

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Acknowledgements

- HIV testing and ART use among STI service attendees
  - Ranmini Kularatne
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- Early warning system for viral suppression
  - Gayle Sherman
  - Adrian Puren